PROJECT NUMBER: 1758
PROJECT TITLE: Tobacco Cell Wall Research
PROJECT LEADER: Gordon H. Bokelman
PERIOD COVERED: September, 1985

## I. BLEND ANALYSIS (Howard Sun)

A database was designed for analyzing the blend compositions in the cigarettes generated from Tom Skidmore's small scale process development program. The objective of this program is to develop a small scale process for producing cigarettes that is comparable to the full scale process.

In collaboration with Doug Albertson, a series of Marlboro cigarettes produced under different manufacturing conditions and their respective co-generated winnowers are now being examined. A major objective is to determine if the resultant blend composition of the cigarettes varies as a function of the large fluctuations in total winnowers content.

## II. RECONSTITUTED TOBACCO STUDIES (Bill Ryan)

Progress has been made in a study to determine the compositions of cell wall structural biopolymers in commercial samples of RCB, RL and RL baseweb by our standard fractionation procedure (Bokelman, Gordon H., William S. Ryan, Jr. and Elisabeth T. Oakley, "Fractionation of Bright Tobacco," J. Agric. Food Chem. 1983, 31, 897-901). Although the calculations cannot be completed until starch determinations are performed by General Analytical, the following results (reported on a percentage dry weight basis) have been obtained.

| Component | RCB | RLTC | RL-BW |
|---|---|---|---|
| EtOH Solubles | 40.2 | 37.8 | 4.6 |
| Aq. Solubles Lost during Dialysis | NA | NA | NA |
| Acid Detergent Solubles | 7.7 | 4.4 | 8.3 |
| Pectin | 13.2 | 15.2 | 27.7 |
| Starch | NA | NA | NA |
| Protein | 6.1 | 4.6 | 7.3 |
| Hemicellulose | | | |
| Soluble | 2.0 | 3.5 | 5.8 |
| Associated with Cellulose | 1.4 | 2.2 | 3.9 |
| Lignin | 2.1 | 2.6 | 4.0 |
| Cellulose | 10.0 | 15.8 | 28.3 |
| Ash | | | |
| Soluble | 2.3 | 0.9 | 1.5 |
| Insoluble | 6.2 | 0.8 | 2.6 |

NA = Not Available

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## III. TOBACCO PECTINS (Howard Sun)

As previously reported, tobacco pectin samples have been isolated from Marlboro Turkish, four grades of bright lamina, three grades of burley lamina, three grades of bright stems, and one grade of burley stems. These samples are now being investigated by methanolysis and the methylation analysis procedure to determine their acidic and neutral monosaccharide compositions and linkage patterns.

## IV. MISCELLANEOUS

1. Memo to Dr. J. L. Charles from Gordon H. Bokelman, "Research of Dr. Shuh J. Sheen on Tobacco Proteases and Related Topics," dated September 10, 1985.

2. Memo to Debra Chadick from G. H. Bokelman, "Growth of Acetobacter Xylinum," dated September 13, 1985.

3. Bokelman, Gordon H., W. S. Ryan, Jr., H. H. Sun and G. C. Ruben, "Tobacco Cell Wall Structural Biopolymers," presented at Philip Morris R&D on September 25, 1985.

Gordon H. Bokelman

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